I SHIRES FIXTURES FIXTURE MFG. CO. Brooklyn, New York

# FLUORESCENT — the modern method of illumination

# IMPORTANT INFORMATION THAT EVERY DEALER NEEDS

## 1. What is fluorescent lighting?

Fluorescent light is produced by a tubular lamp that has no filament such as is used in an incandescent bulb. It is produced in a manner similar to the light of a neon tube. While both lights are the result of electric current passing through a mixture of gases, the fluorescent lamp, because of its coating of fluorescent powder, converts the ordinarily invisible ultra-violet rays into visible light.

#### 2. Why is fluorescent lighting more efficient?

Because it makes usable the ultra-violet rays emitted by all light sources, fluorescent is the only type of lighting that delivers full value for the current consumed.

# 3. How does the efficiency of the fluorescent lamp compare with the ordinary electric bulb?

Lumens are the unit of measure for light output. Based on the output of a 40 watt ordinary electric bulb which produces 468 lumens, a fluorescent tube of the same wattage is four times as effective, because it gives 2120 lumens. The ratio fluctuates with the wattage of the bulbs compared. However, in general terms, fluorescent tubes are much more efficient than incandescent lamps.

#### 4. What is the quality of fluorescent lighting?

One of the most significant features of fluorescent lighting is the color of the light produced. Fluorescent illumination is more nearly like natural daylight than any other type of lighting heretofore available without the use of expensive color filters. For this reason the quality of fluorescent lighting is far beyond that available with the ordinary incandescent bulb.

### 5. Is the adverse criticism of the quality of fluorescent lighting valid?

The only objection we have heard is, "Fluorescent lighting is too bright and glaring for general commercial use." We are inclined to agree with this, but only when the tube is used as an exposed source of light. By this we do not mean to detract from the superiority of fluorescent light, but rather to call to your attention the fact that fluorescent lighting will better suit your needs when used in a lighting fixture scientifically engineered to overcome this objection . . . a lighting fixture with a diffusing glass.

Says the General Electric Co.: "Our standards governing installations of fluorescent lamps are the same as for installations of filament lamps. Fluorescent lamps shall in general be shielded from view especially in locations where close visual work is being done."

### 6. Does the glass on these fixtures affect their efficiency?

No, because the glass used has been designed, perfected and produced just for this purpose. The efforts of Globe's full staff of lighting engineers and designers were expended to achieve the acme of efficiency combined with the ultimate in design. By actual test it has been proven that the glass does not absorb more than 5% to 8% of the light output; a small loss to compensate for the gain in the quality and efficiency of the light.

### 7. Fluorescent is cool lighting — what are the advantages of this?

Because fluorescent tubes radiate only a small fraction of the heat radiated by incandescent lamps, they are an ideal source for the production of cool foot candles at high levels of illumination. This is particularly advantageous in the summer time and where air conditioning equipment is in operation.

#### 8. Can fluorescent equipment be installed on standard wiring?

Fluorescent equipment may be installed on all alternating current lines. However, unless otherwise specified, all equipment will be shipped for 60 cycle, 110-125 volts.

**Direct Current:** Under ordinary conditions only 18 and 24 inch tubes may be used. Because special resistors are required, there is an extra charge for D. C. equipment.

### 9. What is a low power factor and how is it corrected?

A low power factor indicates that more current has to be present in a circuit than is actually going to be utilized. If, for instance, a fixture has a power factor of .50, it will require twice as much current as will be used. This causes difficulties for the power companies — as they have to provide a doubly heavy wire — and they, sometimes, charge a higher rate when the power factor is low. The low power factor can be eliminated by the use of the tu-lamp auxiliaries or separate capacitors.

#### 10. What extra equipment must be used with fluorescent lighting?

Fluorescent lighting is furnished by Globe complete with separate starters and ballast-transformer for every tube. If your local utility requires a high power factor, specify this so that we may supply the tu-lamp auxiliaries. Where the tu-lamp ballast is provided for the 30 and 40 watt tubes, a starting compensator is also supplied. The tu-lamp equipment also tends to overcome the stroboscopic effect (flicker) by balancing two bulbs against each other.

#### 11. How to plan a fluorescent lighting installation?

Plan a fluorescent lighting job as you would an ordinary lighting job, using the following information as your guide.

On a replacement job: Here is a typical example from which you can see exactly how a replacement job is figured.

A store now has eight (8) 200 watt semi-indirect units. Referring to an incandescent lamp price list we find that a 200 watt bulb gives 3680 lumens or a total of 29,440 lumens for the eight fixtures on the job. Actually a semi-indirect unit is less efficient than a direct unit and therefore only about 20,000 of these lumens are effective if our comparison with a direct fluorescent unit is to be accurate. A 40 watt white fluorescent lamp gives 2120 lumens. Based on that, we would need ten 40 watt fluorescent tubes to duplicate the light now being provided by the eight 200 watt units.

Let's suppose that the owner is interested in fluorescent lighting because he wants "Better Lighting for Better Business," and let's, therefore, add approximately 50% more light. In order to do this we shall increase the number of 40 watt bulbs from 10 to 15. These lamps to be arranged in the best manner to suit the individual job. We don't have to take into consideration the number of lumens to be obtained from each fixture, but rather base our recommendation on the total number of lumens plus appearance.

On new buildings: Plan the installation on the same principles used in figuring a replacement job.

### 12. How long do the fluorescent lamps last?

These tubes are now rated at 2500 hours.

# 13. What can be done with special problems on fluorescent lighting?

Globe maintains an engineering staff ready to solve your fluorescent lighting problems for you. Use this service as often as necessary—just be sure to give all specifications.



# a step ahead in design

Just as improvements develop with every new invention when put to actual use, so has it been with fluorescent lighting. Today, illuminating engineers and lighting experts strongly recommend diffusing glass on fluorescent lighting equipment to eliminate glare and thus enhance the quality of illumination this equipment provides. For this reason Globe has developed scientifically correct, highly efficient glass that also adds to the decorative beauty of this fluorescent lighting equipment.

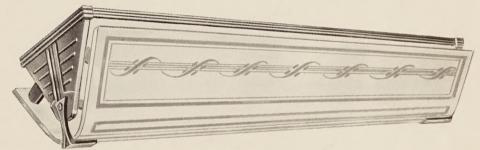


K21-18





These diagrams indicate the positions of the fluorescent tubes on both the 3 and 4 light fixtures in this series.



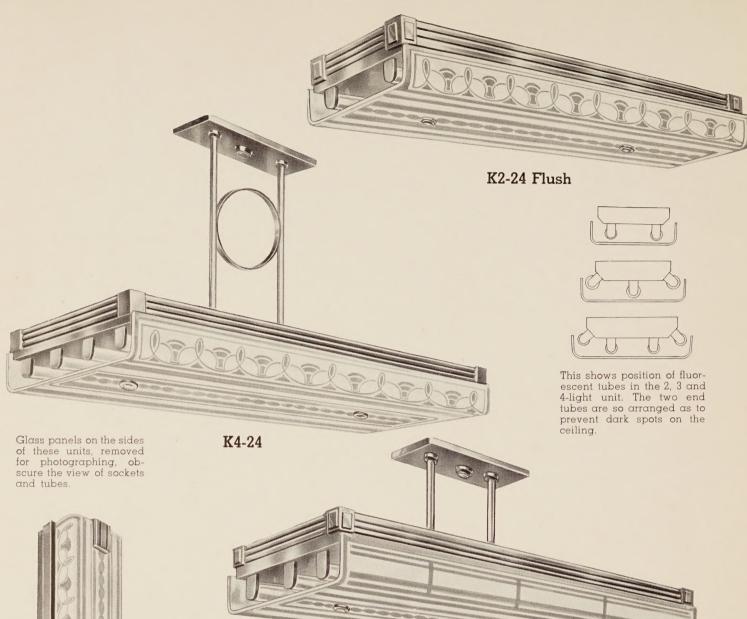
K23-24 Flush

## Finish: SATIN PEWTER

With specially treated Baked White Enamel reflecting surfaces Etched Glass

No.	Lights	Watts	Size	Length Overall	List Price Bare	List Price Low Power	List Price High Power
K 21-18	1	15	5 x 4 ½ x 2 0		17.25	22.50	
K 21-24	1	20	5 x4 ½ x26		21.00	26.25	
K 23-24	3	20	7 1/4 x11 x 25	36"	45.15	59.25	66.00
K 23-36	3	3.0	71/4 x11x37	36"	61.65	87.00	89.25
K 23-48	3	4.0	7 1/4 x11 x 50	36"	70.35	97.50	99.75
K 24-24	4	20	7 1/4 x12x25	36"	46.95	68.25	81.75
K 24-36	4	30	7 1/4 x12x37	36"	67.20	100.50	104.25
K 24.48	4	40	7 1/2 x12x50	36"	76.80	112.50	116.25

NOTE: Specify FLUSH when so desired; and deduct \$3.75 from the List Price, for direct ceiling (flush) fixtures. For additional overall lengths, add \$1.05 per foot to List Prices.



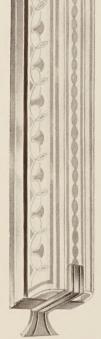
# Finish: SATIN PEWTER

K103-24

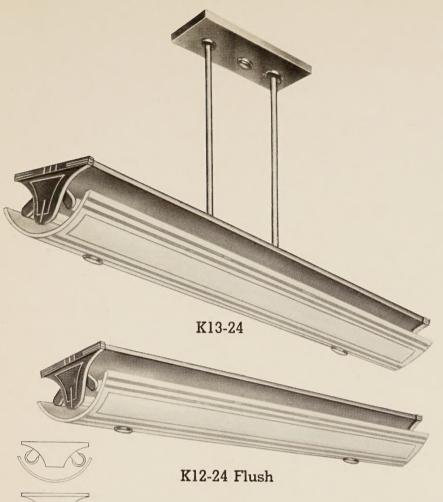
With specially treated Baked White Enamel reflecting surfaces  $$\operatorname{\textsc{Etched}}$$  Glass

No.	Lights	Watts	Size	Length Overall	List Price Bare	List Price Low Power	List Price High Power
K 1-18	1	15	5 x 4 ½ x 2 0		17.25	22.50	
K 1-24	1	20	$5 \times 4 \frac{1}{2} \times 26$		21.00	26.25	
K 2-24F1	LUSH 2	20	5x10x25	36"	31.05	40.50	47.25
K 2-24	2	20	5x10x25	36"	34.80	44.25	51.00
K 2-36	2	3.0	5x10x37	36"	46.05	63.00	65.25
K 2-48	2	40	5x10x50	36"	53.10	71.25	73.50
K 3-24	3	20	5x12x25	36"	42.90	57.00	63.75
K 3-36	3	30	5x12x37	36"	57.15	82.50	84.75
K 3-48	3	40	5x12x50	36"	67.35	94.50	96.75
K 4-24	4	20	5x14x25	36"	46.95	65.25	78.75
K 4-36	4	$\bar{3}\bar{0}$	5x14x37	36"	62.70	96.00	99.75
K 4-48	4	40	5x14x50	36"	72.30	108.00	111.75
K 102-24	2	20	5x10x25	36"	34.80	44.25	51.00
K 102-36	2	30	5x10x37	36"	46.05	63.00	65.25
K 102-48	2	40	5x10x50	36"	53.10	71.25	73.50
K 103-24	3	20	5x12x25	36"	42.90	57.00	63.75
K 103-36	3	30	5x12x37	36"	57.15	82.50	84.75
K 103-48	3	40	5x12x50	36"	67.35	94.50	96.75
K 104-24	4	20	5x14x25	36"	46.95	65.25	78.75
K 104-36	4	$\bar{3}\bar{0}$	5x14x37	36"	62.70	96.00	99.75
K 104-48		40	5x14x50	36"	72.30	108.00	111.75

NOTE: Specify FLUSH when so desired; and deduct \$3.75 from the List Price, for direct ceiling (flush) fixtures. For additional overall lengths, add \$1.05 per foot to List Prices.



K1-18





This diagram shows the placement of the fluorescent tubes in the units of this series.

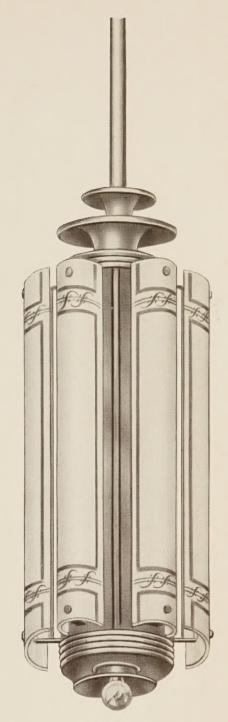
The Fluorescent Lighting Equipment illustrated on these pages has been designed for efficient, effective, decorative illumination. K86-24 series has been especially styled for important places where high ceilings make a unit of this type more appropriate . . . department stores, specialty shops, restaurants, hotel lobbies, public building entrances, halls and lobbies.

### Finish: SATIN PEWTER

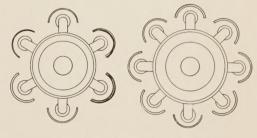
With specially treated Baked White Enamel reflecting surfaces  ${\it Etched \ Glass}$ 

No.	Lights	Watts	Size	Length Overall	List Price Bare	List Price Low Power	List Price High Power
K 12-2	4 2	20	5 1/2 x 8 3/4 x 25	36"	32.55	42.00	48.75
K 12-3	6 2	3.0	5 1/2 x 8 3/4 x 3 7	36"	42.30	59.25	61.50
K 12-4	8 2	4.0	5 1/2 x 8 3/4 x 4 9	36"	49.35	67.50	69.75
K 13-2	4 3	20	5 1/2 x 8 3/4 x 25	36"	42.15	56.25	63.00
K 13-3	6 3	3.0	5 1/2 x 8 3/4 x 3 7	36"	52.65	78.00	80.25
K 13-4	8 3	40	5 1/2 x 8 3/4 x 4 9	36"	62.85	90.00	92.25
K 14-2	4 4	2.0	8x10x25	36"	43.95	62.25	75.75
K 14-3	6 4	3.0	8x10x37	36"	58,95	92.25	96.00
K 14-4		4.0	8x10x50	36"	69.30	105.00	108.75
K 15-2		20	8x10x25	36"	49.95	68.25	81.75
K 15-3		30	8x10x37	36"	67.95	101.25	105.00
K 15-4		4.0	8x10x49	36"	79.80	115.50	119.25
K 86-2		20	Body 12x32	. 42"	100.05	127.50	145.50
K 86-3		30	Body 12x44	60"	122.55	172.50	178.50
K 88-2		20	Body 14x32	42"	120.60	157.50	184.50
K 88-3		30	Body 14x44	60"	143.10	210.00	219.00

NOTE: Specify FLUSH when so desired; and deduct \$3.75 from the List Price, for direct ceiling (flush) fixtures. For additional overall lengths, add \$1.05 per foot to List Prices.



K86-24



This diagram shows the placement of the fluorescent tubes in the units of this series.

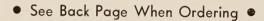


# Finish: SATIN PEWTER

With specially treated Baked White Enamel reflecting surfaces

No.	Lights	Watts	Size	Length Overall	List Price Bare	List Price Low Power	List Price High Power
K 33-24	3	20	6x9x25	36"	32.40	46.50	53.25
K 33-36	3	3.0	6x9x37	36"	40.65	66.00	68.25
K 33-48	3	40	6x9x49	36"	47.85	75.00	77.25
K 34-24	4	2.0	6x9x25	36"	35.70	54.00	67.50
K 34-36	4	30	6x9x37	36"	41.70	75.00	78.75
K 34-48	4	40	6x9x49	36"	49.80	85.50	89.25
K 113-24	3	20	5x11½x25	36"	21.90		
K 113-36	3	30	5x11 1/2 x37	36"		36.00	42.75
K 113-48	3	40	5x11 ½ x49	36"	28.65	54.00	56.25
K 114-24	Α	20	5x11 ½ x25	36"	32.85	60.00	62.25
K 114-36	A	30			22.95	41.25	54.75
K 114-48	4	40	5x11½x37	36"	31.20	64.50	68.25
K 115-24	5		5x11 ½ x49	36"	33.30	69.00	72.75
	5 5	20	$5x11\frac{1}{2}x25$	36"	23.25	46.50	60.00
K 115-36		30	$5x11\frac{1}{2}x37$	36"	31.50	73.50	77.25
K 115-48	5	40	5x11½x49	36"	34.65	79.50	83,25

NOTE: Specify FLUSH when so desired; and deduct \$3.75 from the List Price, for direct ceiling (flush) fixtures. For additional overall lengths, add \$1.05 per foot to List Prices.



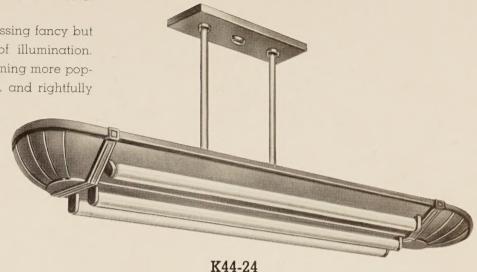






# in FLUORESCENT LIGHTING

Fluorescent Lighting is not a passing fancy but a definite factor in the field of illumination. Fluorescent lighting is fast becoming more popular and more widely used . . . and rightfully so because it is more natural than any other type of lighting developed so far.





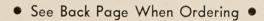
These diagrams show the position of the fluorescent tubes on the 2, 3 and 4-light units in the K44 Series.

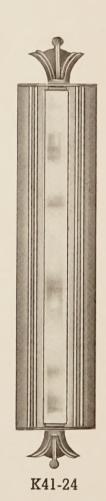


# Finish: SATIN PEWTER and BAKED WHITE ENAMEL

No.	Lights	Watts	Size	Length Overall	List Price Bare	List Price Low Power	List Price High Power
K 41-18	1	15	4 1/4 x 3 1/4 x 2 2		8.25	13.50	
K 41-24	1	20	4 1/4 x 3 1/4 x 2 8		9.75	15.00	
K 42-24	2	20	4 1/2 x7x31	36"	25.80	35.25	42.00
K 42-36	2	3.0	4 1/2 x7 x 43	36"	30.30	47.25	49.50
K 42-48	2	40	4 1/2 x 7 x 5 5	36"	35.85	54.00	56.25
K 43-24Flus	<b>h</b> 3	20	5x9 ½ x32	36"	24.15	38.25	45.00
K 43-24	3	20	5x9 ½x32	36"	27.90	42.00	48.75
K 43-38	3	30	5 x 9 ½ x 4 4	36"	34.65	60.00	62.25
K 43-48	3	40	5 x 9 ½ x 5 6	36"	41.85	69.00	71.25
K 44-24	4	20	5 x 9 ½ x 3 2	36"	28.95	47.25	60.75
K 44-36	4	3.0	5 x 9 ½ x 4 4	36"	37.20	70.50	74.25
K 44-48	4	40	5x9 1/2 x56	36"	45.30	81.00	84.75

NOTE: Specify FLUSH when so desired; and deduct \$3.75 from the List Price, for direct ceiling (flush) fixtures. For additional overall lengths, add \$1.05 per foot to List Prices.







No.	Lights	Watts	Size	List Price Bare	List Price Low Power	List Price High Power
K 50-24	1	20	4 1/2 x8x25	15.00	20.25	
K 50-36	1	3.0	4 ½ x8x37	16.50	25.50	
K 50-48	1	40	4 1/2 x 8 x 4 9	21.15	30.75	
K 51-18	1	15	6x5x19	15.00	20.25	
K 51-24	1	20	6x5x25	16.59	21.75	
K 51-36	1	3.0	6x5x27	18.00	27.00	
K 51-48	1	40	6x5x49	22,65	32,25	
K 52-24	2	20	4 x 6 1/2 x 2 5	16.05	25.50	32.25
K 52-36	2	30	4x6½x37	17.55	34.50	36.75
K 52-48	2	4.0	4x6½x49	25.35	43.50	45.75
K 59-24	1	20	4 1/2 x 5 x 2 5	15.00	20.25	
K 59-36	1	3.0	4 1/2 x5x37	16.50	25.50	
K 59-48	1	40	4 1/2 x 5 x 4 9	21.15	30.75	

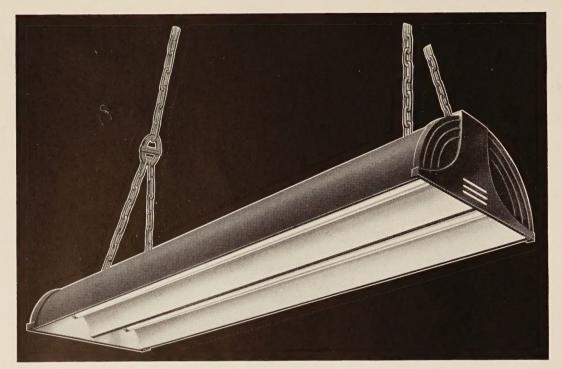
NOTE: Specify FLUSH when so desired; and deduct \$3.75 from the List Price, for direct ceiling (flush) fixtures. For additional overall lengths, add \$1.05 per foot to List Prices.



Finish: BAKED WHITE ENAMEL or ALUMINUM

No.	Lights	Watts	Size	List Price Bare	List Price Low Power	List Price High Power
K 60-18	1	15	1 3/4 x 3 1/2 x 1 9	4.35	7.95	
K 60-24	1	20	1 3/4 x 3 1/2 x 2 5	4.65	8.25	
K 60-36	1	30	1 3/4 x 3 1/2 x 3 7	6.75	13.50	
K 60-48	1	40	1 3/4 x 3 1/2 x 4 9	8.55	15.75	
K 62-24	2	20	$4 \times 6 \frac{1}{2} \times 25$	9.90	13.50	20.25
K 62-36	2	30	4x6½x37	15.00	21.75	24.00
K 62-48	2	40	4x6½x49	20.55	27.75	30.00
K 69-24	1	20	1 3/4 x 3 x 2 5	5.40	9.00	
K 69-36	1	30	1 3/4 x3x37	7.50	14.25	
K 69-48	1	40	1 3/4 x 3 x 4 9	9.30	16.50	

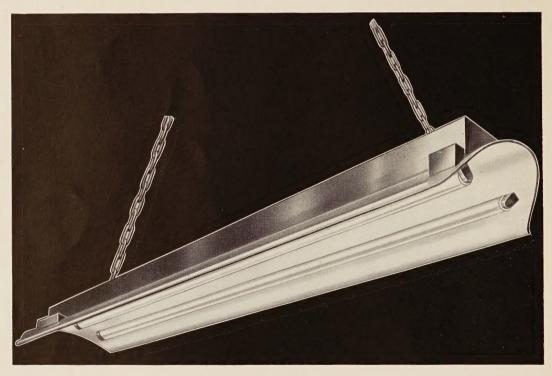
NOTE: Specify FLUSH when so desired; and deduct \$3.75 from the List Price, for direct ceiling (flush) fixtures. For additional overall lengths, add \$1.05 per foot to List Prices.



# Fluorescent Lighting for Industry

Scientifically engineered to provide the maximum benefits of fluorescent lighting. Made of heavy gauge, long turn steel, rugged Bronze finish on the outside, with specially treated, fine Baked White Enamel reflecting surfaces. K92-48 is particularly suited for local lighting such as over an inspection table or drafting board. K72-48 is designed to provide more widely spread illumination for general lighting.

K92-48

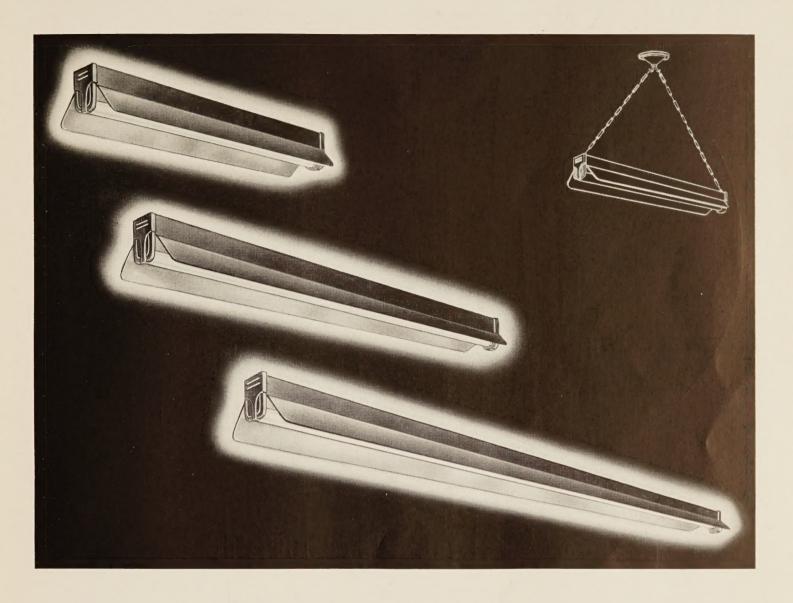


Finish: ANTIQUE BRONZE
With specially treated Baked
White Enamel reflecting
surfaces

K72-48

No.	Lights	Watts	Size	Length Overall	List Price Bare	List Price Low Power	List Price High Power
K 92-24	2	20	7 ½ x14x25	36"	22.80	32.25	39.00
K 92-36	2	30	7½x14x37	36"	21.30	38.25	40.50
K 92-48	2	40	7 1/2 x14 x 49	36"	26.10	44.25	46.50
K 72-24	2	20	7x11x30	36"	19.80	29.25	36.00
K 72-36	2	30	7x11x42	36"	18.30	35.25	37.50
K 72-48	2	40	7x11x55	36"	23.10	41.25	43.50

NOTE: Specify FLUSH when so desired; and deduct \$3.75 from the List Price, for direct ceiling (flush) fixtures. For additional overall lengths, add \$1.05 per foot to List Prices.



# Designed for Efficient Seeing



These scientifically designed units may be used for better fluorescent lighting everywhere efficiency is more important than appearance . . . in show windows, or over work tables in factories, and machine shops.

## Finish: ANTIQUE BRONZE

With specially treated Baked White Enamel reflecting surfaces

No.	Lights	Watts	Size	Length Overall	List Price Bare	List Price Low Power	
K 91-24	1	20	5x8 ½ x24 ½	36"	11,25	16.50	
K 91-36	1	30	5x8 1/2 x36 1/2	36"	13.50	22.50	
K 91-48	1	40	5x8 1/2 x48 1/2	36"	15.90	25.50	

NOTE: Specify FLUSH when so desired; and deduct \$3.75 from the List Price, for direct ceiling (flush) fixtures. For additional overall lengths, add \$1.05 per foot to List Prices.

# FLUORESCENT DESK LAMP with SCIENTIFIC GLASS DIFFUSER



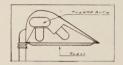
# 1 light and 2 lights

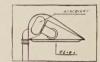
For efficiently lighting a desk, counter or table where close work or color matching is done, this lamp is far superior to any other type of desk lamp. Despite the great amount of light furnished by the fluorescent tube or tubes, glare is entirely eliminated by the use of specially treated glass. The two light desk lamp equipped with tu-lamp balance to prevent flicker.

### Finish: BANK BRONZE

 K 55-18
 1
 15
 Shade 19" long overall
 19.50

 K 65-18
 2
 15
 Lamp Height 15½"
 31.50





These diagrams show the positions of the fluorescent tubes in the 1 and 2-light lamps.

# · ORDERING INSTRUCTIONS ·

# TABLE OF FLUORESCENT TUBE\* PERFORMANCE

Rated for 2500 hour performance.

	15 Watt T 8	15 Watt T 12	20 Watt T 12	30 Watt T 8	40 Watt T 12
White	585	585	900	1440	2120
Daylight	495	495	760	1230	1800
Blue	315	315	460	780	
Green	900	900	1300	2250	
Pink	300	300	440	750	
Gold	375	375	540	930	
Red	45	45	60	120	

<sup>\*</sup>Westinghouse and General Electric data as of March 25, 1940.

All fixtures will be shipped wired with low power factor, 60 cycle, 110-125 volts, alternating current auxiliaries — unless otherwise specified. There will be no additional charge for the 60 cycle, 208 volts or 60 cycle, 220 volts auxiliaries. Auxiliaries for 50 cycle a. c. will be supplied at a slight additional charge.

We do not recommend or guarantee the performance of fluorescent lamps on direct current. However, D. C. units will be supplied for the 18 and 24 inch bulbs at an additional cost of \$6.75 list for each lamp in the fixture.

The 3 and 5 light high power factor units are at present wired with the tu-lamp ballasts and a single auxiliary to provide a power factor over 80%. A new high power factor single auxiliary will be available about April 15, 1940. This auxiliary, used with a tu-lamp ballast, will give a power factor between 95% and 100%. Please specify the new auxiliary if desired and add \$4.50 to the high power factor list.

Specify which type auxiliaries are to be used with bare units, so that fixtures may be properly machined.